

DIGITAL PULSE WIDTH MODULATOR FOR USE IN ELECTROSTATIC PRINTING MECHANISMS

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ABSTRACT

A fully digital pulse width modulator substantially doubles resolution in a laser printer by outputting data to the laser on both the rising and falling edges of the clock cycle. A counter and the clock itself are used to select input to a multiplexer, and consequently, the data output to the laser from the multiplexer. A data selector code, generated by concatenating the binary value of the counter and the inverted clock bitwise, selects which of the 16 bits representing a pixel to place onto the data line, so that all 16 bits are output to the laser serially and sequentially in eight clock cycles. By using both the rising and falling edges of a clock cycle, the clock speed of the device is effectively doubled, without increasing actual clock speed. Device resolution is improved simply and inexpensively without major modification of printed circuit boards.